coupling power to a substrate support via a second power source using high power cycles and low power cycles; and

synchronizing the high power cycles of the second power source with the low power cycles of the first power source such that the second power source provides high power cycles to the substrate support substantially during the time that the first power source provides low power cycles to the plasma.

45. (Original) The method of claim 44, wherein the step of synchronizing comprises commencing each high power cycle provided by the second power after a predetermined delay after each high power cycle provided by the first power source terminates.

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46. (Original) The method of claim 45, wherein the predetermined delay comprises a delay sufficient to allow electrons in the plasma to cool.

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47. (Original) The method of claim 46, wherein the predetermined delay is greater than 20 microseconds.

48. (Original) The method of claim 44, wherein the step of synchronizing comprises terminating each high power cycle provided by the second power source after a predetermined delay after each high power cycle provided by the first power source commences.

49. (Original) The method of claim 48, wherein the predetermined delay comprises a delay sufficient to facilitate coupling of power into the plasma during power up cycles.

50. (Original) The method of claim 49, wherein the predetermined delay is between 1 to 6 microseconds.

51. (Original) The method of claim 44, wherein the step of synchronizing is performed such that the second power source provides high power cycles to the substrate support only during a portion of time that the first power source provides low power cycles to the plasma.

52. (Original) The method of claim 44, wherein the step of inductively coupling power to the plasma is performed such that each high power cycle provided by the first power source comprises a sinusoidal signal, and the low power cycles provided by the first power source comprise substantially no power.

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53. (Original) The method of claim 44, wherein the step of inductively coupling power to the plasma is performed such that each high power cycle provided by the first power source comprises a single pulse having a time varying current, and the low cycles provided by the first power source comprise substantially no power.

54. (Original) The method of claim 53, wherein the high power cycles provided by the first power source alternate between positive and negative pulses.

55. (Original) The method of claim 44, wherein the step of coupling power to the substrate support comprises alternating between high power cycles and low power cycles to form a square wave signal.

56. (Original) The method of claim 44, wherein the step of coupling power to the substrate support is performed such that each high power cycle provided by the second power

source comprises a sinusoidal signal, and the low power cycles provided by the second power source comprise substantially no power.

57. (Original) The method of claim 56, wherein the first power source has a duty cycle within a range of about 5 to 30 percent.

58. (Original) The method of claim 57, wherein the second power source has a duty cycle less than or equal to about one minus the duty cycle of the first power source.

59. (Original) The method of claim 44, wherein the second power source has a duty cycle within a range of about 25 to 75 percent.

60. (Original) The method of claim 44, wherein the step of inductively coupling power to the plasma is performed such that the first power source provides an average power to the plasma within a range of about 200 watts to about 2 kW.

61. (Original) The method of claim 44, wherein the step of coupling power the substrate support is performed such that the second power source provides high power cycles comprising a DC signal within the range of about negative 20 volts to negative 200 volts.

62. (Original) The method of claim 44, further comprising the step of disposing a slotted capacitive shield between the first power source and the plasma to reduce capacitive coupling.

63. (Original) The method of claim 62, further comprising coupling the slotted capacitive shield to ground.

Please add new claims 64-82 as set forth below.

64. (New) A method of plasma processing a semiconductor substrate, comprising:

providing a processing chamber for processing the semiconductor substrate using a plasma;

inductively coupling power to the plasma via a first power source using high power cycles and low power cycles such that the first power source has a duty cycle within a range of about 5 to 30 percent;

coupling power to a substrate support via a second power source using high power cycles and low power cycles; and

synchronizing the high power cycles of the second power source with the low power cycles of the first power source such that the second power source provides high power cycles to the substrate support substantially during the time that the first power source provides low power cycles to the plasma.

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65. (New) The method of claim 64, wherein the step of synchronizing comprises commencing each high power cycle provided by the second power after a predetermined delay after each high power cycle provided by the first power source terminates.

66. (New) The method of claim 65, wherein the predetermined delay comprises a delay sufficient to allow electrons in the plasma to cool.

67. (New) The method of claim 66, wherein the predetermined delay is greater than 20 microseconds.

68. (New) The method of claim 64, wherein the step of synchronizing comprises terminating each high power cycle provided by the second power source after a

predetermined delay after each high power cycle provided by the first power source commences.

69. (New) The method of claim 68, wherein the predetermined delay comprises a delay sufficient to facilitate coupling of power into the plasma during power up cycles.

70. (New) The method of claim 69, wherein the predetermined delay is between 1 to 6 microseconds.

71. (New) The method of claim 64, wherein the step of synchronizing is performed such that the second power source provides high power cycles to the substrate support only during a portion of time that the first power source provides low power cycles to the plasma.

72. (New) The method of claim 64, wherein the step of inductively coupling power to the plasma is performed such that each high power cycle provided by the first power source comprises a sinusoidal signal, and the low power cycles provided by the first power source comprise substantially no power.

73. (New) The method of claim 64, wherein the step of inductively coupling power to the plasma is performed such that each high power cycle provided by the first power source comprises a single pulse having a time varying current, and the low cycles provided by the first power source comprise substantially no power.

74. (New) The method of claim 73, wherein the high power cycles provided by the first power source alternate between positive and negative pulses.

75. (New) The method of claim 64, wherein the step of coupling power to the substrate support comprises alternating between high power cycles and low power cycles to form a square wave signal.

76. (New) The method of claim 64, wherein the step of coupling power to the substrate support is performed such that each high power cycle provided by the second power source comprises a sinusoidal signal, and the low power cycles provided by the second power source comprise substantially no power.

77. (New) The method of claim 76, wherein the second power source has a duty cycle less than or equal to about one minus the duty cycle of the first power source.

78. (New) The method of claim 64, wherein the second power source has a duty cycle within a range of about 25 to 75 percent.

79. (New) The method of claim 64, wherein the step of inductively coupling power to the plasma is performed such that the first power source provides an average power to the plasma within a range of about 200 watts to about 2 kW.

80. (New) The method of claim 64, wherein the step of coupling power the substrate support is performed such that the second power source provides high power cycles comprising a DC signal within the range of about negative 20 volts to negative 200 volts.

81. (New) The method of claim 64, further comprising the step of disposing a slotted capacitive shield between the first power source and the plasma to reduce capacitive coupling.

82. (New) The method of claim 81, further comprising coupling the slotted capacitive shield to ground.